

DETAILED ACTION

1. Claims 1-8, 11-24, 27 are pending.
2. Claims 1, 3, 13, 15, 19, 21 and 27 are independent.
3. Claims 9-10 and 25-26 are cancelled in the amendment filed 10/28/2009.
4. Claim 27 is newly added by amendment filed 10/28/2009.
5. Claims 1, 3, 11, 17, 18, 19, 21, 23, and 24 are amended in the paper filed 10/28/2009.

Response to Amendment

6. The rejection of claims 25-26 under 35 U.S.C. 112, second paragraph, is withdrawn in light of Applicant's cancellation of the claims.
7. The rejection of claims 25-26 under 35 U.S.C. 101 is withdrawn in light of Applicant's cancellation of the claims.
8. The rejection of claims 1-7 and 11-24 under 35 U.S.C. 103(a) as being unpatentable over Payne (US 5,700,742) is withdrawn in light of Applicant's amendment to the claims.
9. The rejection of claim 8 under 35 U.S.C. 103(a) as being unpatentable over Payne (US 5,700,742) in view of North (US 5,352,372) is maintained. See the New Grounds of Rejection below.

Response to Arguments

10. Applicant's arguments with respect to claims 1-8, 11-24, 27 have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejections

Claim Objections

11. Claims 1, 3, and 11 are objected to because of the following informalities:

Claims 1 and 3 have oxalic acid misspelled.

Claim 11 is dependent on cancelled claim 9. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-8, 11-24, 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne (US 5,700,742) in view of North (US 5,352,372).

Payne teaches antimicrobial treatment of textile material with poly(hexamethylene biguanide) and a strong organic acid to protect against yellowing and loss of antimicrobial activity. See abstract.

Regarding the claimed 0.25 to 20 wt% of at least a catalyst; Payne teaches 0.5% oxalic acid and 0.1% poly(hexamethylene biguanide) in example 20 of table 4 in col.8.

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Regarding claim 27 which excludes the oxalic acid catalyst, Payne teach one of ordinary skill that the strong organic acid is also preferably applied from aqueous solution either in the form of the free carboxylic acid or in the form of a water-soluble salt, especially alkali metal salt such as lithium, sodium or potassium salt or as an ammonium salt. See col.6,ln.27.

Regarding the claimed 0.1 to 4 wt% of at least an antimicrobial active agent, reactive with the resin, Payne teaches 0.01 up to 2% biguanide may be sufficient to confer an antimicrobial effect to the material. See col.6,ln.30-35.

Regarding the claimed noncelluloic fibers, Payne teaches in col.5,ln.50-55, the treatment of textile material include polyester, polyamide or polyurethane.

Regarding the method claims of 13-18, Payne illustrates in at least example 21 the treatment of non-cellulosic blended fabric with a treatment solution of 0.1% poly(hexamethylene biguanide), 0.5% aqueous solution of oxalic acid and 0.2% solution of a glycoluril resin containing an acid catalyst with the subsequent steps of drying and curing/baking for 10 minutes at 140 degrees C to cure the resin. Examiner acknowledges that the prior art teaching of Payne does not specifically teach a curing state carried out in the time range of 30 seconds to 5 minutes. However, Payne illustrates 10 minutes of curing which teaching along with the common knowledge that there is an inverse relationship with the temperature and time needed to cure, apprises one of ordinary skill to modify the curing time range and curing temperature as claimed.

Payne does not teach an aqueous composition comprising a self-crosslinkable resin and poly(hexamethylene biguanide) and a strong organic acid as recited by the

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instant claims. However, one of ordinary skill can envisage a composition comprising all 3 components since Payne illustrates two aqueous compositions, namely formulation 14 in claim 1, col. 7 comprising poly(hexamethylene biguanide) and a strong organic acid such as oxalic acid. And formulation P, col.10, table 6, comprising melamine and poly(hexamethylene biguanide). North teaches one of ordinary skill to reduce yellowing and increase whiteness of fabrics with 2 to 40% by weight of the DMDHEU. See col.2,ln.30-40. It would have been obvious to one of ordinary skill in the art, at the time the invention was made to arrive at an aqueous composition comprising a self-crosslinkable resin and poly(hexamethylene biguanide) and a strong organic acid as recited by the instant claims, because Payne in combination with North motivate one of ordinary skill to include all 3 components in a composition to achieve optimum fabric whitening. One of ordinary skill in the art would have been motivated to combine Payne with North since both references teach the analogous art of textile resins that prevent yellowing of the treated fabric.

Payne does not teach the claimed 2 to 20 wt% of at least a self-crosslinkable resin, however, Payne teaches the utility of phenolformaldehyde or urea-glyoxal resins commonly known in the art to provide crease resistance. See col.6,ln.5 and table 6, col.10 where the prior art teaches 1% melamine resins. North teaches 2 to 40% by weight of the DMDHEU to reduce the free formaldehyde in the treated fabric. See col.2,ln.30-35 and 47. It would have been obvious, to one of ordinary skill in the art, to arrive at the claimed 2-20% self crosslinkable resin since the Payne exemplifies 1% melamine resins in general and North teaches the beneficial utility of greater than 2%

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resins to significantly reduce or eliminate free formaldehydes while providing a non-yellowing treated fabric.

Payne does not specifically teach the claimed acid value or moisture regain of $\leq 5\%$. However, it is reasonable to presume said limitations are met by the teachings of the prior art since the reference teaches the analogous oxalic acid with the analogous poly(hexamethylene biguanide) antimicrobial catalyst. The same components being claimed are taught by the prior art in the same ratios and thus can reasonably be expected to have the same acid value and moisture regain of $\leq 5\%$.

Payne does not specifically teach the claimed 75 to 97 wt% of water as recited by the instant independent claims. However, in example 21, Payne teaches an antimicrobial composition comprising 0.1% aqueous solution of poly(hexamethylene biguanide), 0.5% aqueous solution of oxalic acid and 0.2% solution of a glycoluril resin containing an acid catalyst. It would have been obvious, to one of ordinary skill in the art, to arrive at the claimed 75 to 97 % water since the prior art teaches immersion of textile in dilute aqueous solutions of the acid, catalyst, and resin composition. See ex.21.

Payne does not specifically teach claim 8, a self-crosslinkable resin selected from DMDHEU and DHDMEU both of which have the same CAS # 1854-26-8. North teaches treating textile fabrics with DMDHEU/polyol and organic acid catalyst to reduce or eliminate free formaldehyde in the resin while providing a non yellowing treated fabric. See abstract and col.2,ln.40. It would have been obvious to one of ordinary skill in the art, to modify the teachings of Payne with the DMDHEU resin as taught by North

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since the primary reference teaches using a urea resin in general and North teaches the specific utility of DMDHEU in the analogous art of treating textile fabrics.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREETI KUMAR whose telephone number is (571)272-1320. The examiner can normally be reached on 7:30 am-3:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. K./
Examiner, Art Unit 1796

/Gregory R. Del Cotto/
Primary Examiner, Art Unit 1796